IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

FLATWORLD INTERACTIVES, LLC, Plaintiff, v. SAMSUNG ELECTRONICS CO., LTD., et al., Defendants.	**Civil Action No. 12-804-LPS** **Jury Trial Demanded**
FLATWORLD INTERACTIVES, LLC, Plaintiff, v. LG ELECTRONICS, INC., et al., Defendants.	**Civil action No. 12-964-LPS** **Jury Trial Demanded**

PLAINTIFF FLATWORLD'S OPENING CLAIM CONSTRUCTION BRIEF

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Plaintiff FlatWorld Interactives, LLC ("FlatWorld") hereby submits the following memorandum in support of its proposed claim constructions.

I. INTRODUCTION

FlatWorld proposed terms – short sequences of one, two or three words from the claims – for construction. Defendants proposed the same or similar terms, but also insisted upon constructions of whole phrases in which such terms appear. This memorandum is organized such that a set of terms is construed, followed by the phrases in which they appear, and this model is repeated until all of the proposed terms and phrases are construed. Accordingly, the sequence of FlatWorld's constructions is not likely to match that of defendants' constructions.

The constructions proposed herein derive primarily from the express language of the claims, and from the specification of US Patent No. RE 43,318 ("the '318 Patent" or "patent-in-suit"), supported in some instances by corroborating evidence in the prosecution histories of the patent. In particular, FlatWorld demonstrates herein how its constructions follow from, and are consistent with, the preferred embodiments disclosed in source code quoted in figures in the patent. In the few instances in which FlatWorld cites definitions from dictionaries, they are offered only to corroborate the constructions derived from the claims, specification and prosecution history, and as evidence that FlatWorld's constructions are consistent with the common and ordinary meaning of the terms to a person having ordinary skill in the art.

In the following text, FlatWorld cites the Court to intrinsic evidence (the claims, specification and prosecution history) and in a few instances extrinsic evidence (dictionary definitions). The referenced alphabet-lettered Exhibits (*e.g.*, A, C-8, etc.) are the patent and prosecution history filed as D.I. 41-1 through 42-8. The cited dictionary definitions are exhibits to the Declaration of Ryan Meyer ("Meyer Decl.") filed herewith.

II. BACKGROUND OF THE TECHNOLOGY AND THE PARTIES

Dr. Slavoljub Milekic, Professor of Cognitive Science at the University of the Arts in Philadelphia, has a diverse background. He has a medical degree in General Medicine, a Ph.D. in Experimental Psychology, and a MS in Neuropsychology. In addition, he is an artist and a self-taught computer programmer, who has been engaged in digital systems since personal computers became available to the public. These diverse elements coalesced to enable him to conceive the inventions claimed in the '318 Patent in 1997.

Previously, while Dr. Milekic was teaching in the Cognitive Science Department of Hampshire College, he began experimenting with the use of touch screens to study the cognitive mapping abilities of young children. Cognitive mapping is the ability to look at an image, such as a photograph of a room filled with objects, and map from the picture to the real objects in the real room. Prior research held that children do not have this ability below a certain age. Dr. Milekic developed a testing tool with a touch screen and a computer programmed to allow children to directly move images of objects within a picture of a room on the screen. To his surprise, the physical activity of directly moving an image of an object on a screen allowed children to map to the real object at a younger age than the prior research had predicted.

Dr. Milekic realized that this novel way of interfacing with computers, by directly manipulating images on a touchscreen, opened a new range of possibilities. He began looking for other ways to implement it. In so doing, he noticed a call for proposals for a conference called "*Museums and the Web*," dealing with art and the digital medium. Dr. Milekic wrote a paper outlining how to make digital information more accessible to children, which described his use of a touchscreen graphical user interface ("GUI") to enable direct manipulation of displayed images. His presentation of the paper at the conference in March, 1997 attracted considerable interest from museum professionals, some of whom subsequently contacted him and asked him

to design such a system for their use. As a result, Dr. Milekic's invention has been exhibited at the Speed Art Museum, the Phoenix Art Museum, and the Philadelphia Zoo.

In 1997, Dr. Milekic applied for a patent, which issued as U.S. Patent No. 6,920,619, and later became the '318 Patent. It claims priority to a provisional application he filed on August 28, 1997. The '318 Patent is drawn to a computer system that distinguishes between when a user wishes to "drag" an image across the screen to a different position, and when the user wishes to "throw" the image entirely off the screen. The system uses a threshold velocity and other factors in making this distinction. If the user moves an image below a threshold velocity, the image is dragged across the screen. But if the movement exceeds a threshold velocity, the computer removes the image from the screen. Thus, the manipulated image behaves like a similarly manipulated object in the real world. For example, one may swipe one's hand slowly to move a pen from one position on a desk to another, or swipe one's hand quickly to throw it off of the desk altogether. This continuity between the real and virtual world decreases the cognitive load of the user interface, *viz.* making the user interface easier and more intuitive for any user.

Since 1997, Dr. Milekic's invention has become so common in digital devices that it is a ubiquitous means of interacting with them. Apple's accused products are the iPhone, iPod, iPad, Nano, and various desktop and laptop computers. Beginning in 2007, *ten years after* Dr. Milekic filed his provisional application and with full notice of Dr. Milekic's patent, Apple began incorporating his claimed invention into its digital devices. Dr. Milekic's claimed "throw" gesture is one of only a few gestures – scroll, drag-and-drop, pinch-to-zoom, and double-tap – uniformly recognized by smart phones, tablets, and other digital systems across multiple platforms, and one of the fundamental ways that users interact with them.

III. LAW OF CLAIM CONSTRUCTION

There are three primary resources in claim construction: the express terms of the patent's claims, the specification or written description of the patent, and its prosecution history or file wrapper, which together form the intrinsic evidence. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996). "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (citing *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1216 (Fed. Cir. 1995)).

In construing claims, the Court must look first to the language of the claims themselves. *Middleton, Inc. v. Minn. Mining & Mfg. Co.*, 311 F.3d 1384, 1387 (Fed. Cir. 2002). To that end, "the words of a claim 'are generally given their ordinary and customary meaning.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005). The inquiry into how a person of ordinary skill in the art understands a claim term at the time of the invention provides an objective baseline from which to begin claim construction. *Id.* More specifically, "the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, as of the effective date of the patent application." *Id.* at 1313.

The context in which a term is used in a claim can be highly instructive. *See Phillips*, 415 F.3d at 1314 (explaining that the term "steel baffles" in a claim "strongly implies" that "baffles" are not inherently made of steel). Other claims of the patent-in-suit can also shed light as to the meaning of a claim term. *Id.*[1] For example, the presence of a dependent claim that adds

[1] *See also Arlington Indus. v. Bridgeport Fittings, Inc.*, 632 F.3d 1246, 1254 (Fed. Cir. 2011).

a particular limitation gives rise to a presumption that the limitation in question is not present in the related independent claim. *Id.*[2]

The specification or written description is "'always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* at 1315.[3] The Federal Circuit has invited courts "to rely heavily on the written description for guidance as to the meaning of the claims." *Id.* at 1317. A patentee's choice of embodiments to describe in the specification may shed light on the intended scope of the claim. *Cybor Corp. v. FAS Tech. Inc.*, 138 F.3d 1448, 1471 (Fed. Cir. 1998). Although the specification describes specific embodiments of the invention, the claims are not limited to only those embodiments. *Id.*; *Phillips*, 415 F.3d at 1323.[4] On the other hand, a construction that *excludes* a preferred embodiment "*is rarely, if ever, correct.*" *Vitronics,* 90 F.3d at 1583 (emphasis supplied).

The "[p]rosecution history is an important source of intrinsic evidence in interpreting claims because it is a contemporaneous exchange between the applicant and the examiner." *Desper Prods. v. QSound Labs., Inc.*, 157 F.3d 1325, 1336-37 (Fed. Cir. 1998). It "consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent." *Phillips*, 415 F.3d at 1317. "[L]ike the specification, the prosecution history was created by the patentee in attempting to explain and obtain the patent." *Id.* Although a patent applicant may narrow the ordinary meaning of a claim term by excluding specific interpretations that were disclaimed during prosecution, the test for a disclaimer of claim scope is stringent. *Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1330 (Fed. Cir. 2012). A

[2] *See also Voda v. Cordis Corp.*, 536 F.3d 1311, 1320 (Fed. Cir. 2008) (independent claim did not require a portion of the claimed catheter to be straight where dependent claim recited that the portion is straight).

[3] *Accord Kim v. ConAgra Foods, Inc.*, 465 F.3d 1312, 1318 (Fed. Cir. 2006).

[4] *See also Kara Tech. Inc. v. Stamps.com Inc.*, 582 F.3d 1341, 1348 (Fed. Cir. 2009) ("The claims, not specification embodiments, define the scope of patent protection.").

disclaimer of claim scope "must be clear and unambiguous," *Seachange Int'l, Inc. v. C-COR, Inc.*, 413 F.3d 1361, 1373 (Fed. Cir. 2005), and "unmistakable," *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325-26 (Fed. Cir. 2003).

All other evidence of the meaning of a claim, such as dictionaries, learned treatises, expert testimony, and the testimony of the inventor, is extrinsic evidence. *Markman*, 52 F.3d at 980. "[D]ictionary definitions may establish a claim term's ordinary meaning," *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002), and "may be relied upon 'so long as [they do] not contradict any definition found in or ascertained by a reading of the patent documents,'" *Wavetronix v. EIS Elec. Integrated Sys.*, 573 F.3d 1343, 1355 (Fed. Cir. 2009) (quoting *Vitronics*, 90 F.3d at 1584 n.6). However, such evidence is separate from the patent, typically prepared for litigation purposes, and not necessarily reflective of the perspective of a person of ordinary skill in the art. *Phillips*, 415 F.3d at 1318. Thus, use of extrinsic evidence in claim construction is disfavored. *See Vitronics*, 90 F.3d at 1584 (if "an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term . . . it is improper to rely on extrinsic evidence.").[5] The court may rely on extrinsic evidence "[o]nly if a disputed claim term remains ambiguous after analysis of the intrinsic evidence." *Pickholtz v. Rainbow Techs., Inc.*, 284 F.3d 1365, 1372-73 (Fed. Cir. 2002). But a court must not use extrinsic evidence "to vary, contradict, expand, or limit the claim language from how it is defined, even implicitly, in the specification or [file] history." *Dow Chem. Co. v. Sumitomo Chem. Co., Ltd.*, 257 F.3d 1364, 1373 (Fed. Cir. 2001).

[5] *See also Boss Control, Inc. v. Bombardier Inc.*, 410 F.3d 1372, 1377 (Fed. Cir. 2005) ("In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence."); *Bell & Howell Document Mgmt. Prods. Co. v. Altek Sys.*, 132 F.3d 701, 707 (Fed. Cir. 1998) ("Because the intrinsic evidence unambiguously defined the disputed claim limitation, the district court's reliance on the expert testimony ... to contradict the intrinsic evidence when interpreting the claims was error.").

IV. DISPUTED CLAIM TERMS

A. "image," "dragged," and "threshold velocity"

1. "image": A displayed or drawn representation on the display that can be manipulated as a unit in response to touch or location inputs.

The term "image" appears throughout the asserted claims. In claim 1, for example, the term appears in the following contexts:

> A system for manipulating ***images*** comprising:
> a screen upon which an ***image*** is displayed; and
> a computer coupled to the screen, the computer causing the ***images*** to be manipulated . . .
> when the ***image*** is being dragged in response to the location inputs and the system detects that the velocity with which the ***image*** is being dragged exceeds a threshold velocity, the system responds by removing the ***image*** from the display without leaving any representative thereof in the display.

Ex. A, '318 Patent at 15:1-13. Thus, an "image," as used in the claims of the '318 Patent, has three attributes: (1) it is a representation displayed on a screen; (2) it can be manipulated by the user in response to location inputs; and (3) when dragged and when thrown, it is treated as a unit.

The specification corroborates these three attributes. It states that an image is something that is displayed on a touch-sensitive screen. *See, e.g.*, *id.* at 2:8-10. The graphical user interface Dr. Milekic invented "is based on manipulating an image on the touch sensitive screen by touching the image directly." *Id.* at 2:18-20. An image that has been selected for moving by touching it on the screen may be moved by moving the touched point within the image, "caus[ing] the image to move with the touched point, thus permitting the image to be dragged." *Id.* at 2:23-24. Thus, for the invention to work as described, the image must be a representation of something that is *displayed on the screen.*

The specification states that the "image" may be manipulated by the user by being dragged, moved, and removed. *See, e.g.*, *id.* at Abstract, 2:20-32, 8:6-18. "[S]elected objects

can be dragged by moving the finger across the screen, and 'dropped' by lifting the finger." *Id.* at 6:40-43. Throwing is executed when the speed at which an image is dragged across a screen "exceeds a threshold speed that corresponds more or less to the speed of the natural throwing motion." *Id.* at 6:56-59. Thus, the image must be capable of being manipulated.

A preferred embodiment, described in the specification in source code, indicates that the image is dragged on the screen, and later thrown off of the screen, as a unit:

```
repeat forever
  put mouseLoc() into OldPosition
  set the loc of the target to MouseLoc()
  wait 2 ticks
  put mouseLoc() into CurrPosition
  if the mouse is up then exit repeat
end repeat

put the ticks into StartTime

if (item 1 of OldPosition - item 1 of CurrPosition) > 2 then
  throwLeft
  GetNewPart
  put the ticks into StartTime
  exit MoveMe
end if

...

on throwLeft
  global CurrPosition
  put item 2 of CurrPosition into ypos
  move the target to -100,ypos
end throwLeft
```

Id. at Fig. 13, Fig. 15 (emphasis supplied). The underscored lines demonstrate that the image (the "target") is moved in its entirety with the location of the touch (the "mouseLoc()"), and that the entire image is moved off of the screen ("move the target to -100,ypos," in other words, at 100 pixels to the left) when thrown. *See also, e.g., id.* at 12:30-34 ("The code for throwleft on throwLeft 1501 simply moves the currently selected component indicated by the target to a

position which is off screen 111 to the left thereby removing the currently selected component from the display."). Thus, an "image" is manipulated as a unit.

2. "dragged": Caused to move in response to the touched point or to track location inputs.

"Dragged" is another term that appears throughout the claims. In claim 1, for example, the term appears in the following context:

> a computer coupled to the screen, the computer causing the image to be manipulated in response to location inputs from a pointing device, the system being characterized in that:
>
> when the image is being ***dragged*** in response to the location inputs . . . .

Id. at 15:4-9. Thus, an image is "dragged" in the claims when it is caused to move in response to location inputs, or in the "touch screen" claims 7 and 15, in response to the touched point ("when the point being touched is being continually moved" (claim 7) or "the continuing touch that moves the image across the touch screen" (claim 15)).

The specification underscores this construction in a description of a preferred embodiment's source code. Professor Milekic conceived his invention before there was any special programming language for touch screens, so the touch is referred-to as the "mouse" and the location of the touch is referred-to as "mouseLoc[ation]()." The algorithm defining a "drag" operation is set forth in Fig. 13. It provides that the system registers the location of the touch ("mouseLoc( )") as "oldPosition" and moves the image (the "target") to that position, waits 2 ticks of the program's clock (1/30th of a second), then registers the new location of the touch as "currPosition," and repeats this process until the touch ends ("if the mouse is up then exit repeat"):

```
repeat forever
  put mouseLoc() into oldPosition
  set the loc of the target to MouseLoc()
  wait 2 ticks
```

```
    put mouseLoc() into CurrPosition
    if the mouse is up then exit repeat
end repeat
```

Id. at Fig. 13. Thus, the image is dragged across the screen with the continuing touch as long as this processing loop continues repeating, i.e., as long as the touch has not ended. "MouseLoc()" is the location input, and the algorithm causes the image to move in response to it ("set the loc of the target to MouseLoc()"). *Id.* at Fig. 13 at 1303. Moving the touched point "causes the image to move with the touched point, thus permitting the image to be dragged." *Id.* at 2:22-24.

3. "threshold velocity"

"velocity": The speed of motion in a given direction

"threshold velocity": A velocity that if exceeded is a condition to change the meaning of a gesture from a drag to a throw.

"Threshold velocity" is used in the claims as one of the conditions that changes a gesture from a drag to a throw. Thus, for example, claim 1 recites:

> when the image is being dragged in response to the location inputs and the system detects that the velocity with which the image is being dragged exceeds a ***threshold velocity***, the system responds by removing the image from the display without leaving any representative thereof in the display.

Id. at 15:8-13. We know that the recited "threshold velocity" condition for changing the gesture from a drag to a throw is non-exclusive (in other words, "threshold velocity" may be the only, or one of two or more such conditions), because of the claim's preamble: "a system for manipulating images *comprising*." All of the asserted claims and their dependent claims, are open-ended because the limitations are preceded by a preamble ending in the word "comprising."

It is hornbook patent law that "[t]he word 'comprising' transitioning from the preamble to the body signals that the entire claim is presumptively open-ended." *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1371-72 (Fed. Cir. 2005) ("[t]he addition of elements not recited

in the claim cannot defeat infringement.").[6] Other authorities confirm that the use of "comprising" is understood to render a claim open-ended. Professor Donald Chisum, the author of the definitive treatise on patent law, explains that patent applicants use the term "comprising" to denote open-ended claims:

> In the lexicon of patent law "comprising" means that the "recited elements are only a part of the device." *Berenter v. Quigg*, 737 F. Supp. 5, 6-7 (D.D.C. 1988). In other words, *if the invention is claimed as "comprising" elements X and Y, it may also "read on" and cover a device with elements X, Y, and Z. The claim is thus "open."*

3 DONALD CHISUM, CHISUM ON PATENTS § 8.06[1][b][ii][A] (2009) (emphasis supplied). Similarly, the Manual of Patent Examining Procedure ("MPEP"), the handbook followed by patent examiners when examining claims, explains that "[t]he transitional term 'comprising', which is synonymous with 'including,' 'containing,' or 'characterized by,' is inclusive or open-ended and *does not exclude additional, unrecited elements or method steps*." MPEP § 2111.03 (Aug. 2012) (emphasis supplied).

The specification provides an example of an embodiment of the invention in which exceeding the threshold velocity is one of three conditions in changing a gesture from a drag to a throw. It clearly discloses a preferred embodiment in which the system must (1) detect that the user's touch has ended, and then (2) process *both* velocity and (3) direction before an image can be removed from the screen. The specification states that in the source code set forth in Figure

[6] *See e.g., Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc.* 246 F.3d 1336, 1347 (Fed. Cir. 2001) ("The transition 'comprising' creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements."); *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342 (Fed. Cir. 2008) (construing "a" or "an" open-endedly where patentee used "comprising" transition); *Free Motion Fitness, Inc. v. Cybex Int'l*, 423 F.3d 1343, 1350 (Fed. Cir. 2005) (declining to limit term "a linking cable" to require a single cable, and adopting open-ended construction); *Scanner Tech. Corp. v. ICOS Vision Sys. Corp.*, 365 F.3d 1299, 1305 (Fed. Cir. 2004) ("The use of the transitional phrase 'comprising' itself indicates that the elements or steps following the transition may be supplemented by additional elements or steps and still fall within the scope of the claim."); *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368 (Fed. Cir. 2003) ("The transition 'comprising' in a method claim indicates that the claim is open-ended and allows for additional steps."); *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997) ("'Comprising' is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.").

13, portion 1301 implements dragging, and portions 1311 and 1317 implement throwing. Ex. A at 11:61-63. Portion 1301 of the source code in Figure 13 provides:

```
repeat forever
  put mouseLoc() into OldPosition
  set the loc of the target to MouseLoc()
  wait 2 ticks
  put mouseLoc() into CurrPosition
  if the mouse is up then exit repeat
end repeat
```

Id., at Fig. 13 (emphasis supplied). After determining the "mouse is up," the system runs several tests to determine which directional "throw" routine to call, of which the following is one example for a "throwLeft":

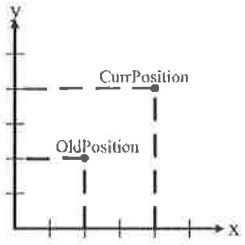
```
if (item 1 of OldPosition - item 1 of CurrPosition) > 2 then
  throwLeft
  GetNewPart
  exit MoveMe
end if
```

Id.

The first condition is whether the touch ("mouseLoc()") has ended ("mouse is up"). The processing loop to register the location of the touch "repeat[s] forever," *until* the system detects that "the mouse is up," *i.e.,* until the touch is lifted off of the screen. *Id.* at Fig. 13 at 1301. "[I]f the mouse is up," then the algorithm "exit[s] repeat." *Id.* The system begins to determine whether a throw has occurred only after it detects that the touch is lifted off the screen. *Id.* This fact is further supported by the prose description in the specification. *Id.* at 11:61-12:22. In fact, in the source code of the preferred embodiment, as long as the touch remains on the screen, no matter how fast the image is dragged it will *never* be thrown.

The second condition is the direction of the touch. Source code tests trigger calls to one of four throw routines, "throwLeft," "throwRight," "throwUp" and "throwDown," which the processor works through sequentially after it detects that the touch has ended. *Id.* at Fig. 13 at 1311 and 1317. The specification explains that "[t]he position variables OldPosition and CurrPosition each contain two values, item **1**, which is the x coordinate, and item **2**, which is the

y component." *Id.* at 12:9-12. In other words, the drag routine 1301 locates both OldPosition and CurrPosition of the touch in two-dimensional space, as shown below:



The preferred embodiment processes the first algorithm, portion 1311, as a test to determine whether to call a throwLeft routine:

```
If (item 1 [x coordinate] of OldPosition - item 1 [x
coordinate] of CurrPosition) > 2 then
  throwLeft
```

Id. at Fig. 13 at 1312.

The difference between the x coordinates in the source code above registers the velocity (distance between "Curr" and "Old" coordinates over two ticks of time), and the order in which the x coordinates are compared detects the direction ("Curr" minus "Old" = right or up; "Old" minus "Curr" = left or down). The threshold velocity in the example of source code above is 2 (2 pixels of movement over 1/30 of a second). If the condition for a throwLeft is not met ("Curr" minus "Old" is not >2), then the system proceeds sequentially through the other three throw call tests. The code tests for throwRight, throwUp and throwDown routines sequentially to determine direction and velocity. If no conditions for a throw routine are met, the source code tests do not call a throw routine. In sum, there are only four throw tests in the preferred embodiment of Fig. 13, each of which is contingent on detecting (1) "mouse" is up, (2) direction, and (3) velocity.

The prosecution history also emphasizes that threshold velocity is only one of two or more conditions to change the drag to a throw. FlatWorld clearly explained to the Examiner that the algorithm for "throwing" depends upon both speed and direction:

> *"Throwing" is thus a modification of the dragging operation that is well known in GUIs that takes the speed as well as the direction of the dragging into account*. The particular semantic of the operation is that when the speed is above a threshold velocity, the image being dragged is removed from the display.

Ex. C-8 at FW00010659 (emphasis supplied); *see also* Ex. C-9 at FW00010684 (emphasis supplied). Thus, velocity is used in the '318 Patent in its common and ordinary sense, "the speed of something in a given direction" according to both the *Oxford English Dictionary* (Meyer Decl., Ex. 1) and *Dictionary* v.2.2.2 (Apple, Inc.) (Meyer Decl., Ex. 2).

It follows that "threshold velocity" may be one, or one of two or more, conditions to effect the recited change, including direction, whether the touch has ended (mouse is up), *etc.* The recited change in the claims is from dragging an image ("when the image is being dragged in response to the location inputs") to throwing an image ("the system responds by removing the image from the display without leaving any representative thereof in the display"). *See,* Claim 1. FlatWorld emphasized this change in defining a "threshold velocity" to the patent examiner in the quote above ("The particular semantic of the operation is that when the speed is above a threshold velocity, the image being dragged is removed from the display." (Ex. C-8 at FW00010659)). Thus, "threshold velocity" means "a velocity that if exceeded is a condition to change the meaning of a gesture from a drag to a throw."

4. "the velocity with which the image is being dragged"
"the velocity at which the point is moving"
"the velocity of the touch."

Having defined "velocity," "image," and "dragged," which have the same meaning throughout the claims, the above three phrases proposed by defendants are easily construed

according to their common and ordinary meaning. The first term simply means the velocity (as defined above) of the drag (as defined above) that moves the image (as defined above). *See* Claim 1. The second term means the velocity of the point of the touch. *See* Claim 7. And the third term means the velocity of the touch that moves the image. *See* Claim 15.

B. "when," "continually," and "continuing"

1. "when": In view of the fact that; in the event that; if.

Each of the claims incorporates the term "when" with reference to the conditions required to remove an image from the display. For example, claim 1 provides:

> ***when*** the image is being dragged in response to the location inputs and the system detects that the velocity with which the image is being dragged exceeds a threshold velocity, the system responds by removing the image from the display without leaving any representative thereof in the display.

Ex. A at 15:8-13. "When," in the context of the claims, is used in its conditional sense. In other words, "if" the recited conditions are present, the system or computer responds by removing the image from the screen or display. As noted at pages 10-11, above, the recited condition is not exclusive, because the claims are all open-ended "comprising" claims, so the recited "threshold velocity" may be one or one of two or more conditions to remove an image from the screen.

The specification clearly provides that the term "when" is used in its conditional sense in the claims:

> Portions 1311 and 1317 implement throwing. The position variables OldPosition and CurrPosition each contain two values, item 1, which is the x coordinate, and item 2, which is the y component. In loop 1301, OldPosition is set a little more than two clock ticks before CurrPosition; consequently, the velocity with which a component is moved can be determined from the distance between the position specified in OldPosition and the position specified in CurrPosition (1312). In this embodiment, the velocity threshold is a distance of 2 of the distance units established by SuperCard. *If the distance between the position variables is greater than that, a throw has occurred*. In 1311, the throwing motion is to

> the left; in 1317, the cases where the throwing motion is to the right, up, or down are dealt with. Here, we need only describe 1311 in detail. As shown at 1313, first the user-defined throwLeft condition 1313 is raised; this gets rid of the part being thrown. Then the user-defined condition GetNewPart 1315 is raised; this gets the replacement part. Finally, MoveMe code 1215 is exited.
>
> *The code that is executed when these conditions are raised is shown in FIG. 15, with the code for throw Left at 1501 and the code for GetNewPart at 1507.*

Ex. A, '318 Patent at 12:9-34 (emphasis supplied).

The fact that FlatWorld's construction reflects the understanding of a person having ordinary skill in the art at the time of the invention is evidenced by the *Merriam-Webster Dictionary* (Meyer Decl., Ex. 3), which defines "when" in its conditional sense to mean "in the event that: if <a contestant is disqualified when he disobeys the rules>." *See also,* Apple's *Dictionary* application ("in view of the fact that; considering that") (Meyer Decl., Ex. 2); *American Heritage Dictionary* ("considering that: IF") (Meyer Decl., Ex. 4).

2. "continually moved"/"continuing touch": A movement/touch that causes an image to be dragged across the screen.

The terms "continually moved" and "continuing touch" appear in the two claims that are limited to touch screen systems, claims 7 and 15. For example, claim 7 recites:

> when the point being touched is being ***continually moved*** and the system detects that the velocity at which the point is moving exceeds a predetermined threshold velocity, the image being ***continually moved*** is removed from the screen without leaving any representative thereof on the screen.

Similarly, claim 15 recites:

> the computer responding to a ***continuing touch*** that moves the image across the screen such that when the computer detects that the velocity of the touch exceeds a predetermined threshold, the computer responds by removing the image from the screen . . . .

These terms are used in the claims to distinguish two different means to move an image on the screen: dragging-and-dropping and two consecutive taps at different locations on the screen.

The specification discloses two ways to move an image on the screen. First, the specification recites that an image may be moved by dragging by "moving the finger across the screen" and dropping it by lifting the finger. Ex. A at 6:40-43. It describes this method of moving an image with a single continuous touch: "[m]oving objects: Selected objects can be dragged by moving the finger across the screen . . . ." *Id.* at 6:40-42; *see also id.* at 7:23-25 ("FIG. 3 shows how objects like circle may be selected by touching and once selected, they may be dragged to another location by moving the finger across the screen."). Second, the specification recites touching the image on the screen, and then touching the screen again at another location, which causes "the object to move to the location that was [last] touched" or jump between the locations of the two non-continuous touches:

> Pointing to an object: Pointing to a location consists of simply touching screen 111 at the desired location. If what was last selected was an object, the touch may cause the object to move to the location that was touched.

Id. at 6:50-55.

In the original patent application, there were claims that claimed both the single continuous touch dragging means of moving an image across the screen and the double touch "jumping" means of moving an image across the screen. For example, claim 25 of the original patent application claimed the dragging gesture describing the movement as "continual":

> 25. A system for manipulating a movable image comprising:
>
> a touch-sensitive screen upon which the images are displayed;
>
> a computer coupled to the screen, the computer causing the images to be manipulated when the touch screen is touched,
>
> the system being characterized in that:

> touching the movable image at a point within the image selects the image for moving and *continually moving the touched point while touching the screen causes the image to be moved with the touched point*.

Ex. C-6, Prosecution History at FW00010570-71 (emphasis supplied). But claim 27 of the original application claimed the double touch means of movement:

> 27. The system set forth in claim 25 wherein:
>
> the actions further include *touching the screen at a point that is not within any movable image*,
>
> the action of *touching the screen at such a point causing the image selected for moving to move to the point that was touched*.

Id. at FW00010571 (emphasis supplied). Ultimately, the double-touch "jumping" claims were dropped during prosecution, but the single-touch dragging claims characterized by a "continual" touch remained.

FlatWorld's proposed construction reflects this distinction between two means to move an image. A "continuing touch" and touch "being continually moved" is the touch that permits the image to be dragged across the screen, as distinguished from the non-continuous double touches that permit the image to "jump" across the screen.

3. "when the image is being dragged in response to the location inputs" "when the point being touched is being continually moved" "the computer responding to a continuing touch that moves the image across the touch screen."

Having construed "when" and "continually"/"continuing," as well as "image" and "dragged," the above three phrases are easily construed according to their common and ordinary meaning. The first phrase means that the system removes the "image" (as defined above) if it is being dragged (as defined above) and the other conditions recited in the claim (*e.g.*, threshold velocity) arise. *See* Claim 1. The second phrase means that the system removes the "image" if the point being touched is dragging the image and the other recited conditions arise. *See* Claim

7. The third phrase means that the computer responds by removing the image if at least the touch drags the image and the other recited conditions arise. *See* Claim 15.

C. "removed," "removing," and "representative"

1. "removed/removing": Eliminating the image from the screen without leaving a representative of the removed image on the screen.

The Court need look no further than the claims, themselves, to construe the terms "removed" and "removing." In all three independent claims, an image is "removed" if it is taken off of the screen without leaving any representative of the removed image on the screen. *See,* Claim 1 ("removing the image from the display without leaving any representative thereof in the display"); Claim 7 ("removed from the screen without leaving any representative thereof on the screen"); and Claim 15 ("replacing the [removed] image with a replacement image that is not a representative of the removed image"). Thus, "removed" means, according to the claims, eliminated from the screen without leaving a representative of itself on the screen.

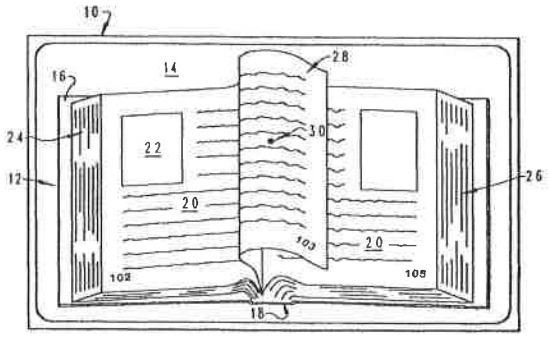
According to the specification, a throw "gets rid of the part being thrown." Ex. A, '318 Patent at 12:23-24; 14:40-42. The removed image is taken completely off (or eliminated) from the screen:

> The code for throwleft, on throwLeft 1501 simply moves the currently-selected component (indicated by the target) to a position which is off screen 111 to the left, thereby removing the currently-selected component from the display.

Id. at 12:30-34.

In the prosecution history, removal of the image without leaving a representative of the image on the screen was a point of distinction between the invention and the prior art. One reference was U.S. Patent 5,463,725 ("Henckel"), a book reader tablet device in which the screen displayed images of the open pages of a book in perspective, as if the user was looking down on

it, and the non-displayed images of pages were represented by depictions of the edges of the pages (24, 26) underneath the displayed pages (20):



Ex. D-6 at Fig. 2. Henckel was distinguished because its user could never remove the image of a page from the screen:

> When a page is turned in a book, the page is not removed from the book. Similarly, when the page is turned in Henckel's display, it is not removed from the display, but is instead indicated in the display by its edge.... Since the page is not 'remov[ed] from the display', Henckel does not disclose that limitation of Applicant's claim."

Ex. C-10, Prosecution History at FW00010737. U.S. Patent 5,844,547 ("Minakuchi") was similarly distinguished:

> Minakuchi has a touch screen display, and the pointing device is the user's finger. When the user's finger is moving across the touch screen at a high speed and encounters an object that is displayed on the touch screen, the result is that the object appears to be 'flipped', i.e., it moves in the direction of motion of the finger. However, the operation does not remove the 'flipped' object from the display.

Id. at FW00010737. The applicant summarized:

> The fact that the image is removed from the set immediately distinguishes Applicant's invention as now claimed from the disclosures of Henckel and Minakuchi. As Examiner admits in his final Office action of 3/12/2003, Minakuchi's 'flip' operation does not remove the flipped image from the display, and thus does not remove it from the set of images being manipulated. The same is

> true with regard to Henckel. Instead of removing a page of the book from the set of images being manipulated, it changes the form that the image of the page has in the set. *As shown in FIGs. 1 and 2 of Henckel, a page is alternatively represented by three images: an opened page, as shown at 20 in FIG. 1, a page edge, as shown by 24 or 26 in FIG. 1, and a turning page, as shown at 28 in FIG. 2. Henckel's swipe operation first causes an open page to be represented in the set of images by a turning page and finally by a page edge; it does not cause the page to be removed from the set of images, as required by Applicant's claims as presently amended.*

Ex. C-11, Prosecution History at FW00010767 (emphasis supplied). Accordingly, "removed" / "removing" means "eliminating the image from the screen without leaving a representative of the removed image on the screen."

2. "representative thereof"/"representative of the removed image": A depiction of at least a portion of the removed image.

The term "representative" appears in all of the asserted claims. For example, claim 1 recites as follows:

> the system responds by removing the image from the display without leaving any ***representative thereof*** in the display.

Thus, contextually, "representative thereof" refers to the image that has been removed from the screen or display, and it means that nothing of the image –no depiction of any portion of the removed image – remains.

The prosecution history introduces the term "representative" to distinguish the claimed invention from Henckel. FlatWorld distinguished Henckel on the ground that the images of the pages were never "removed" because depictions of the edges of each removed page – a representative of the removed image – remained on the screen:

> Henckel discloses "a display similar to a printed book or magazine."...When one turns a page in a printed book or magazine, the page does not simply vanish from the book or magazine; as would be expected from a display that emulates the behavior of a printed book or magazine, a turned page also does not vanish from Henckel's display. *Instead, a given page is*

> *always present in Henckel's display, just as a given page is always present in a printed book or magazine....Since a given page in Henckel's display is always represented in Henckel's display by either a displayed page 20, a turning page 28, or a line 24 or 26, Henckel does not disclose the limitation of Applicant's independent claims that Applicant's thrown image is "removed from the set."*

Ex. C-14 at FW00010818-19 (emphasis supplied); *see also* Ex. C-10 at FW00010737, lines 14-15 ("Similarly, when the page is turned in Henckel's display, it is not removed from the display, but is instead indicated in the display by its edge."); Ex. C-13 at FW00010803; Ex. C-4 at FW00010450. FlatWorld explained when distinguishing Henckel, "[i]nstead of *removing* a page of the book from the set of images being manipulated, it [Henckel] changes the *form* that the image of the page has in the set." Ex. C-11 at FW00010767.

Thus, in Henckel, there is always a portion or form of the dragged or manipulated image on the display: either a displayed page, a turning page, or the edge of a turned page depicted as a line. *Id.* FlatWorld distinguished Henckel by showing that in the invention, no portion of the removed image – no representative thereof – remained on the screen. Therefore, "representative thereof" and "representative of the removed image" mean a depiction of all or a portion of the removed image.[7]

3. "removing [the image] from the display without leaving any representative thereof in the display"
"removed from the screen without leaving any representative thereof on the screen."

Having construed "removing" / "removed" and "representative," the above two phrases may be easily construed according to their common and ordinary meanings. The two phrases mean that the image is eliminated from the display/screen without leaving a depiction of any portion of the eliminated image on the display/screen. *See* claims 1 and 7, respectively.

[7] The use of the term "representative" in the '318 Patent is consistent with the common and ordinary meaning of this term. "Representative" means "representing, depicting, or portraying or able to do so." *American Heritage Dictionary.* "Thereof" means "of or concerning this, that, or it." Meyer Decl., Ex. 4.

4. "the system responds by removing the image from the display"
"the image being continually moved is removed from the screen"
"the computer responds by removing the image from the screen."

These three phrases also follow from the above constructions according to their common and ordinary meaning. The first phrase means that the system responds to the recited conditions by eliminating the image from the display without leaving a representative of the eliminated image on the screen. *See*, claim 1. The second phrase means that the image being dragged is eliminated from the screen without leaving a representative of the eliminated image on the screen. *See*, claim 7. The third phrase means that the computer responds to the recited conditions by eliminating the image from the screen without leaving a representative of the eliminated image on the screen. *See*, claim 15.

5. "when the image that is being removed is dragged in a first [second] direction"
"when the continuing touch moves in a first [second] direction."

The meaning of these two phrases from dependent claims also follow from the above constructions according to their common and ordinary meaning. They mean that the system or apparatus replaces the removed image if at least the recited conditions (*i.e.,* dragging the image in a first or second direction) arise. *See* Claims 3, 9 and 16.

D. "image's content": the attributes of the image

In the claims, an image is assigned to a class "according to the image's content." A "class" as used in the specification means a grouping of images according to their attributes:

> Conceptually, each part belongs to a class of parts, such as eyes, noses, etc. Within the class, the part has an ID number, and if it is a part that comes in pairs, it has an indication whether it is the left or right member of the pair. In the preferred embodiment, this information about the part is encoded in the part's name. For instance, in the part name Leye5, eye indicates the class name, 5 the kind of eye, and L that the eye is a left eye.

Ex. A, '318 Patent at 12:45-52. Similarly, the specification refers to "content" as the "information" pertaining to the image:

> *Change in content structure*. The change in content structure does not mean change in content per se, but rather change in the way the content is organized and presented to the child. To an illiterate person (or a child) all the 'folders' on a computer display look pretty much the same. Thus, in a child friendly digital environment the indicators of content should be clearly distinct visually and represent familiar aspects of the child's experience. However, this is the most superficial change necessary. There are other aspects of children's activity that call for more radical changes. These are a) *making the information (content) manipulable*, and b) making the content structure compatible with the child's social environment.

Id. at 4:16-28 (emphasis supplied). Thus, the term "image's content" is used in its common and ordinary meaning to simply mean the attributes of the image.

E. "ordered set": a sequence of images

The term "ordered set" is used broadly in the claims to describe images in any sequence. In claims 18, 19, and 20, all that is required for any sequence of images to be an "ordered set" is for a removed image to have an image that "precedes" it in the set, and another image that "follows" it in the set. *See* claims 18, 19 and 20. This construction is underscored in the specification. An "ordered set" of pictures may be "predetermined" or "random":

> There may be a predetermined order of pictures or the next picture to be displayed may be selected at random from the group of pictures belonging to the same category.

Id. at 9:10-14. Or a set may be "ordered" according to some attribute:

> The same mechanism may be used with games. For example, throwing the shape sorting display of FIG. 4 to the left or right may result in another shape sorting game being displayed, while throwing it up or down may result in a puzzle or a face assembly game being displayed. Moreover, the activities within a category may be ordered as required by the pedagogical purpose of the category. An example might be pictures that were ordered by increasing distance from photo graphic realism.

Id. at 9:23-31. Thus, an "ordered set" is simply "a sequence of images."

F. "class": a category of images sharing common attributes.

The term "class" means a category of images sharing common attributes. The specification defines the term by example, referring to parts of a face:

> The child may also use the throwing interaction described above to replace a face part with a new face part. For example, an ear of the type shown at 607 may be replaced by one of the type 617. The exchange is carried out by throwing the selected part toward the bottom part of the screen. When this is done, *a different part of the same class appears, for example, ear 617.*

Ex. A, at 8:6-12 (emphasis supplied). Similarly, the specification uses the term to describe different categories of images:

> The child-friendly digital system must thus provide the child with a simple technique that permits it to both navigate among classes of activities and versions of activities in a class and to select a one of the activities. In a preferred environment, this is done with throwing. To get another version of the present object or activity, the child throws the present one to the left or the right; to get a different class of object or activity, the child throws the present one up or down. FIG. 9 shows how this works with pictures belonging to different categories. The pictures have been divided up into the categories "deer" (901, 905, 903), "faces" 907, and "outdoors" (not shown). Presently, deer picture 901 is being displayed on display 111. If picture 901 is thrown to the left, deer picture 903 is displayed; if picture 901 is thrown to the right, deer picture 905 appears. There may be a predetermined order of pictures or the next picture to be displayed may be selected at random from the group of pictures belonging to the same category. The child can thus use throwing to the right or left to explore a category. If the child wishes to examine a new category, the child throws present picture 901 up or down. In FIG. 9, throwing current picture 901 down causes a picture belonging to faces category 907 to be displayed; throwing current picture 901 up causes a picture belonging to the "outdoors" category to be displayed; to see other pictures within the category the child throws the current picture to the left or right.

Id. at 8:63-9:22. *See also*, *id.* at 12:45-47 ("Conceptually, each part belongs to a class of parts, such as eyes, noses, etc."). Accordingly, a "class" is a category of images with common attributes, such as "eyes," "noses," "ears," or "deer," "faces," or "outdoors."

V. CONCLUSION

For the foregoing reasons, FlatWorld respectfully requests that the Court adopt FlatWorld's proposed claim constructions.

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Respectfully submitted,

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